Palm oil expansion to continue

In 1960, production of Malaysian palm oil totaled about 101,600 metric tons.

In 1976, production has risen to 1.4 million metric tons.

By 1980, Malaysia expects to be producing 2.6 million metric tons. By 1995, according to one recent projection, the figure will rise to 6.6 million tons.

Those raw figures explain why three sessions on palm oil during the fall meeting attracted consistently large crowds. Some listeners were potential users or suppliers, some were competitors, and some were merely curious about the rapidly expanding palm oil industry.

M.L. Yong, convener of the technical research committee of the Oil Palm Growers' Council of Malaysia, promoted palm oil usage in frying fats, margarines, shortenings, and confectionary products.

Yong emphasized quality control efforts by growers, beginning with improved plant genetics through greater care in harvesting, processing, and shipment of palm oil.

"Malaysian palm oil, because of its high quality, can be easily refined into a bland, neutral, light-colored product," Yong said. "This is due to the low oxidation value and excellent bleachability of the oil, notwithstanding its high carotene content. Because of its non-foaming characteristics and natural stability, it is used increasingly as a frying fat in Europe and the United States of America. Malaysian palm oil is also used extensively in margarine, shortening, and confectionary formulations."

John Rourke of Unilever Limited in London, England, listed six main advantages favoring use of palm oil.

(a) "Natural coloring materials can provide a colorant for margarine and yellow fats.
(b) High solid glyceride content gives consistency without hydrogenation.
(c) Low linolenic and linoleic acid content give good heat stability.
(d) Oleic is the main unsaturized fatty acid giving a medium melting point with good resistance to oxidation.
(e) A low level of triglycerides containing short chain fatty acids which are susceptible to hydrolysis minimizes development of off-flavor from microbiological action.
(f) The level of high-melting triglycerides combined with the relatively low solid content at 10 C helps in the formulation of products with a wide plastic range, suitable for hot climates and some industrial applications."

Some of the advantages, Rourke said, become disadvantages depending on the projected oil use.

The high carotenoid level may make it difficult to produce clear oils, or costs may be prohibitive, he said. The 10 percent linoleic acid content desirable for margarine essential fatty acid content is too low to permit usage of large qualities of margarine requiring high polyunsaturated fatty acid levels.

Furthermore, palm oil does not melt as quickly in the mouth as other potential margarine oils, he said.

Free fatty acid content can increase rapidly in overripe or damaged fruit incorrectly prepared for storage, according to Rourke. Yong explained that producers try to minimize opportunities for free fatty acids to form. Natural palm oil is under one percent of free fatty acids, but this can rise quickly after harvest, according to Arnold Gavin of EMI Corp. in Des Plaines, IL. He estimated that a good grade of Malaysian crude would contain 3 to 5 percent free fatty acids.

Rourke said that the free fatty acid content facilitates the pickup of pro-oxidant contaminants. Yong stressed efforts by the Malaysian palm oil industry to reduce this risk by careful handling during processing and transport. Such efforts include storing oil in coated tanks and shipping with a blanket of inert gas.

"Slow crystallization properties can promote structural hardness in finished products and also aggravate a tendency for recrystallization to occur with consequent impairment of texture," Rourke commented.

Other talks during the sessions included a Swedish margarine manufacturer's observations on palm oil quality, and four papers on fractionation.

"With increasing quantities of palm oil being produced, Malaysia is now stepping up her efforts to increase demand for the oil through development of new end uses," Yong said.

"From its initial use as an axle grease in the railways, palm oil has indeed come a long way, to be used now in shortenings, margarines, cooking oil, and vanaspati."

Fresh fruit bunch from palm oil tree

The oil palm, a native of the Guinea coast of West Africa, was introduced into Malaysia around 1903 as an ornamental plant from the Botanical Gardens Singapore.

The oil palm tree, in appearance, is rather like the date palm, with a large head of pinnate feathery fronds growing from a sturdy trunk. The fruit grows in bunches weighing 40 to 50 pounds, with 400 to 1,500 individual fruits on each bunch.

Palm trees require about three years to start bearing fruit and reach peak production in eight to ten years. Malaysian palm trees will produce 3,000 pounds of oil per acre.

It was not until 1917 that the first commercial planting was undertaken, and the planted acreage remained small until 1965, when there was a dramatic increase due to large-scale plantings (75,735 hectares) by private companies and the Federal Land Development Authority. By 1975, 182,000 hectares were under cultivation.

Harvesting is done by hand using either a chisel or a curved knife on a long pole depending on the height of the palm tree. The bunch is harvested from the tree by cutting through the bunch stem. Harvested bunches are gathered together with any detached fruit and carried manually to a road side to await transport to an oil mill.

The fruit consists of the outer pulp—the source of the crude palm oil, an inner shell used as fuel, and a kernel which is the source of palm kernel oil.

(This information was compiled from papers presented at the AOCS fall meeting by M.L. Yong of the Oil Palmers Growers' Council of Malaysia and by Arnold M. Gavin of EMI Corp., Des Plaines, IL.) ●